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| 10/628,990      | 07/28/2003  | Opher Kahn           | 42.P8917D           | 7335             |

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| EXAMINER |
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MCLEAN MAYO, KIMBERLY N

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| ART UNIT | PAPER NUMBER |
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2187

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| MAIL DATE | DELIVERY MODE |
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09/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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## Office Action Summary

Application No.

10/628,990

Applicant(s)

KAHN ET AL.

Examiner

Kimberly N. McLean-Mayo

Art Unit

2187

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 and 30-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12, 20-23, 30-33 and 41-44 is/are rejected.
- 7) ☒ Claim(s) 13-19 and 34-40 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2007 has been entered.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 4 and 8 recite the limitation "the first value" in lines 3 and respectively. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2187

6. Claims 1-44 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The independent claims call for, “increasing a first memory bandwidth if a demand for memory bandwidth is less than the first memory bandwidth and decreasing the first memory bandwidth if a demand for memory bandwidth is greater than the first memory bandwidth.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-12, 20-23, 30-33 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bogin (USPN: 5,953,685) in view of Woo (USPN: 6,021,076).

Regarding claims 1, 5, 9, 20, 24, 30 and 41, Bogin discloses allocating a first memory bandwidth (C 4, L 16-22; bandwidth of device prior to activation of the throttling regime); decreasing the first memory bandwidth if a demand for memory bandwidth is greater than the first memory bandwidth C 4, L 37-45, L 54-59). Bogin does not disclose increasing the first memory bandwidth if a demand for memory bandwidth is less than the first memory bandwidth. However, Woo teaches increasing the first memory bandwidth [wherein the first memory bandwidth, is the bandwidth allocated when thermal regulation is enabled] if a demand for

Art Unit: 2187

memory bandwidth is less than the first memory bandwidth (C 9, L 60-67; C 10, L 1-10; C 6, L 1-15 – if the temperature [and thus the corresponding operating conditions [bandwidth] of the memory device at that instance] is below a threshold, thermal regulation is disabled which effectively increasing the bandwidth of the memory). Regarding claim 5, hardware devices such as memory controllers are controlled/operated by software stored in a machine-accessible medium.

Regarding claim 2, Bogin and Woo disclose setting a window of time to monitor the demand for memory bandwidth (Bogin – Figure 3B, Reference 300; C 5, L 11-19) and measuring the demand [number of accesses to memory by the memory controller] for memory during the window of time (Bogin – C 5, L 19-31).

Regarding claims 3, 32 and 43, Bogin does not disclose applying a mask to increase the bandwidth. if a demand for memory bandwidth is less than the first memory. However Bogin and Woo disclose increasing the memory bandwidth when the demand for memory [memory accesses by the memory controller] is less than the bandwidth (Woo -C 9, L 60-67; C 10, L 1-10; C 6, L 1-15 - if the temperature [and thus the corresponding operating conditions [bandwidth] of the memory of the device at that instance] is below a threshold, thermal regulation is disabled which effectively increases the memory bandwidth). Since Bogin effectuates changing the bandwidth of the memory by applying a mask, it is evident that the mask would be applied to increase the bandwidth also.

Art Unit: 2187

Regarding claims 4, 8, 33 and 44, Bogin and Woo disclose applying a mask to decrease the memory value to a value lower than the first value if a demand for memory bandwidth by the memory controller is less than the first value (C 7, L 63-67; C 8, L 1-12).

Regarding claims 10, 21, 31 and 42, Bogin and Woo disclose a first register in the memory controller to set the memory bandwidth (Bogin - Figure 3B, Reference 310; C 5, L 46-59); a second register in the memory controller to set a window of time to monitor a demand for memory bandwidth (Bogin - Figure 3B, Reference 300; C 5, L 11-19); and a counter in the memory controller to measure demand for the memory bandwidth (Bogin - Figure 3B, Reference 303; C 5, L 19-31).

Claims 11, 22 and 26 are rejected for the same rationale applied to claims 3 and 7 above.

Claims 12, 23 and 27 are rejected for the same rationale applied to claims 4 and 8 above.

#### ***Allowable Subject Matter***

9. Claims 13-19 and 34-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

10. Applicant's arguments filed July 2, 2007 have been fully considered but they are not persuasive.

Art Unit: 2187

The Applicant argues that Bogin nor Woo teach variable allocation between first, second and third bandwidths, but has a fixed allocation pre-programmed at power up of the computer. This assertion is incommensurate with the claims. The claims call for increasing and decreasing memory bandwidth; these features are taught by the prior art as indicated above. Bogin teaches decreasing memory bandwidth and Woo teaches increasing memory bandwidth. Thus, the combined references teach the claimed invention.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 571-272-4194. The examiner can normally be reached on Monday-Friday (10-6:30).

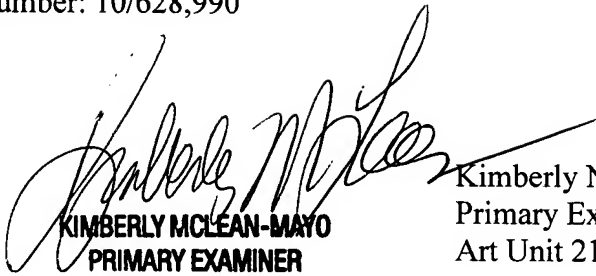
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/628,990

Page 7

Art Unit: 2187



**KIMBERLY MCLEAN-MAYO**  
**PRIMARY EXAMINER**

Kimberly N. McLean-Mayo  
Primary Examiner  
Art Unit 2187

KNM

September 15, 2007